CLAIMS

1. A regulator for increasing the efficiency of an engine, the regulator being locatable in or adjacent to an engine manifold and comprising a propeller connected to a power supply for driving the propeller, and a means for mounting the propeller in the manifold, the propeller having a longitudinal pin defining a rotation axis and at least one blade attached to the pin by means of an elongated blade root which substantially follows the longitudinal axis of the pin..

2. A regulator as claimed in claim 1, wherein the blade root follows the longitudinal axis of the pin in an at least partial helical manner.

3. A regulator as claimed in either claim 1 or 2, wherein the length of the blade root is greater than the distance between the blade tip to the pin.

4. A regulator as claimed in any preceding claim, wherein the length of the blade root is substantially equal to the blade length.

5. A regulator as claimed in any preceding claim, wherein the regulator further comprises a perforated element capable of allowing the passage of fluid material therethrough, and a means for mounting the perforated element in the manifold.

6. A regulator as claimed in claim 5, wherein the perforated element is operable between a first closed position arranged to allow passage of fluid material through the perforations, and a second open position arranged to allow passage of the fluid material by passing the perforations.

7. A regulator as claimed in any preceding claim, wherein the blade has a substantially smoothly curving blade edge.

8. A regulator as claimed in any of claims 1 to 6, wherein the blade has a shape substantially of a semi-circle, an ellipse, a part ellipse, a teardrop, a half-teardrop, a bell curve, a half-bell curve, a rectangle, a square, a triangle or derivatives thereof.

9. A regulator as claimed in any preceding claim, wherein the blade is wider towards one end of the blade root.

10. A regulator as claimed in any preceding claims, wherein the propeller is effective to pull fluid material from a region upstream of the propeller to a region downstream of the propeller.

11. A regulator as claimed in any of claims 5 to 9, wherein the propeller is effective to cause turbulent fluid flow in the region downstrem thereof.

12. A regulator as claimed in any of claims 5 to 11, wherein a perforated element is disposed upstream and downstream of the propeller.

13. A regulator as claimed in of claims 5 to 12, wherein at least one perforated element and/or the propeller is heated by a heating means.

14. A regulator as claimed in claim 13, wherein the means for heating is connected directly to the perforated element or propeller.

15. A regulator as claimed in claim 14, wherein the means for heating is connected indirectly to the perforated element or propeller.

16. A regulator as claimed in any of claims 14 to 15, wherein the means for heating comprises an electrical power supply and/or thermal conduction.

17. A regulator as claimed in any preceding claim, wherein the regulator is heated by means of a heating coil disposed externally or internally to the regulator.

18. A regulator as claimed in any of claims 5 to 17, wherein the perforated element is rotatable.

19. A regulator as claimed in any of claims 5 to 18, wherein the speed of the propeller and/or perforated element is determined by the RPM of the engine and/or load on the engine and/or environmental conditions.

20. A regulator as claimed in any of claims 5 to 19, wherein the temperature of the perforated element or propeller is determined by the RPM of the engine and/or load on the engine and/or environmental conditions.

21. A regulator as claimed in either claim 19 or 20, wherein the speed and temperature is controlled by the ECU of the engine.

22. A regulator as claimed in any of claims 5 to 21, wherein the rotation of the propeller and/or the perforated element is powdered by means of an electric motor or kinetic energy from the engine.

23. A regulator as claimed in any preceding claim, wherein the propeller is produced from a heat conductive material.

24. A regulator as claimed in any of claims 1 to 22, wherein the propeller is a composite of a heat conductive material and a non-heat conductive material.

25. A regulator as claimed in any preceding claim, wherein the rotation axis of the propeller is substantially in alignment with the longitudinal axis of the manifold.

26. A regulator as claimed in any of claims 1 to 24, wherein the axis of the propeller is between 0.5° to 60° with respect of the longitudinal axis of the manifold.

27. A regulator as claimed in any preceding claim, wherein the perforated element is aligned perpendicular to the longitudinal axis of the manifold.

28. A regulator as claimed in any of claims 5 to 26, wherein the perforated element is disposed at an angle to the manifold wall in the range of 1° to 15°.

29. A regulator as claimed in any of claims 5 to 28, wherein the perforated element comprises a gauze.

30. A regulator as claimed in any of claims 13 to 29, wherein the propeller and/or the perforated element is heated to a predetermined temperature and controlled by a thermostatic cut-off should the temperature rise above a predetermined temperature.

31. A regulator as claimed in any preceding claim, wherein the regulator is located in the inlet manifold of an engine.

32. A regulator as claimed in claim 31, wherein the engine is an internal combustion engine.

33. A regulator as claimed in either claim 31 or 32, wherein the fluid material is a fuel and air mixture.

34. A regulator as claimed in any of claims 31 to 33, wherein the heating means is independent of the temperature of the fuel/air mixture passing through the internal combustion engine.

35. A regulator as claimed in any of claims 31 to 34, wherein the propeller is located near to or adjacent to a fuel injector or a carburettor.

36. A regulator as claimed in claim 35, wherein the propeller and/or perforated element only rotates when fuel is injected from an injector or expelled from a carburettor.

37. A regulator as claimed in any of claims 31 to 36, wherein the regulator is pre-heated prior to the ignition of the engine.

38. A regulator as claimed in any of claims 1 to 30, wherein the regulator is located in the outlet manifold of an engine.

39. A regulator as claimed in claim 38, wherein the outlet manifold of an engine is the exhaust manifold of an internal combustion engine.

40. A regulator as claimed in either claim 38 or 39, wherein the regulator further comprises a portion which is charged so as to attract and collect particulate matter from the exhaust of the engine.

41. A regulator as claimed in any of claim 38 to 40, wherein the regulator further comprises a filter to collect particulate matter.

42. A regulator as claimed in claim 41, wherein a suction means is attached to the filter.

43. A regulator as claimed in any of claims 38 to 42, wherein the regulator further comprises a portion for liquefying gaseous material.

44. A regulator as claimed in claim 43, wherein a suction means is attached to the portion for liquefying gaseous material.

45. An internal combustion regulator substantially as herein described, with reference to and as illustrated in the accompanying figures.